帝国インキ製造株式会社
Teikoku Printing Inks Mfg. Co., Ltd.

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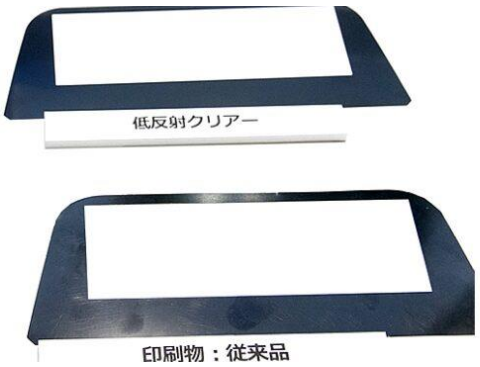
TECHNICAL REPORT

Good news to those who develop car navigation system and touch panel.

Improving visibility of display by realizing both low-reflection function and high transparency.



Introduction of MIX-HF ink（3）

We will introduce MIX-HF ink improving visibility of display in a high level by realizing both anti-glare (low-reflection) function and high transparency.

1. MIX-HF ink with high transparency solves problem of optical Clear

1.1 Realization of high transparency and excellent leveling (smooth finish of printed ink layer surface)

MIX-HF ink realized high transparency and excellent leveling compared to conventional inks.
Haze value(*) which represents transparency indicates superior numerical value.

Product name	MIX-HF 000 Medium	Transparent color of other company's product
Haze value	0.6	3.9

(*) Haze value
Haze value indicates the rate of diffuse transmittance light to non-diffuse transmittance light. That is, the smaller such value is, the better transparency is.

Haze value (%) = Td / Tt × 100
(Td: Diffuse transmittance rate. Tt: Transmittance rate of all range light rays.)

1.2 MIX-HF ink solves problem of conventional anti-glare (low-reflection) Clear.

Anti-glare (low-reflection) Clear is clear ink which is applied on the surface of car navigation display, etc. for the purpose of improving visibility by reducing reflection of sun light, etc.

However, most of these Clear inks reduce original function of display as they provide low transparency.

However, providing low-reflection function to MIX-HF ink with high transparency by its nature realizes both low reflection function and high transparency.

Item	Contents
Problem solved by MIX-HF	Realizing reduction of reflected light and high transparency. Bringing out original function of display itself and improving visibility. (Conventional Clear provided low transparency.)

1.3 Expanding application field by realizing both high transparency and low-reflection function

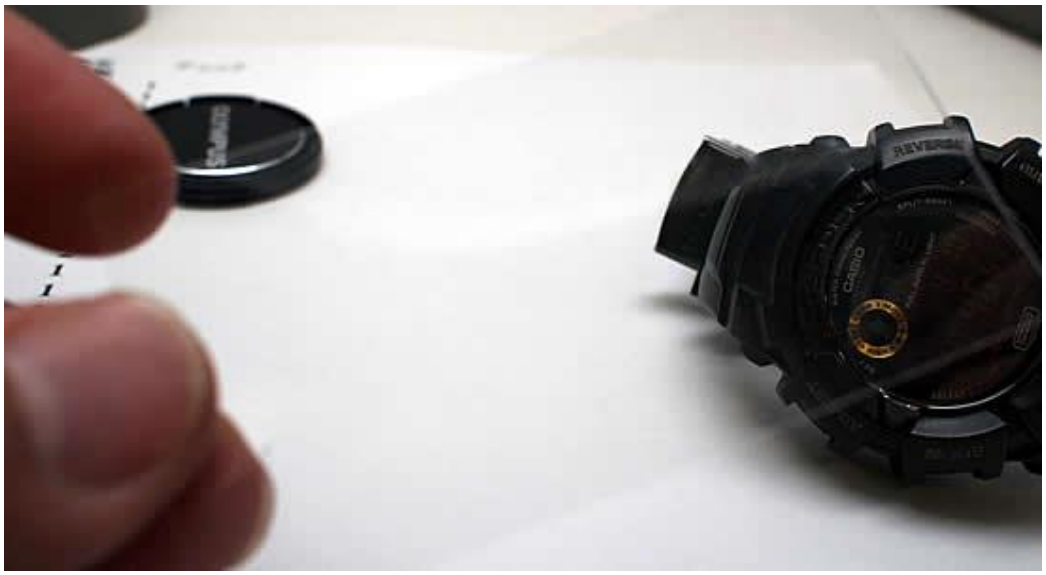
There are various applications to Clear ink providing low-reflection function to transparency of MIX-HF ink.

Application examples	Characteristics and effects
Car navigation system	Improving visibility by reducing reflection of sun light, etc. and by high transparency
Touch panel display	Improving visibility by reducing reflection of indoor light, etc. and by high transparency. Since providing good adhesion to PMMA, Applicable to panel using hard-coat acrylic.
Body of slot machine and pinball game	Controlling glare from other light source such as indoor lighting, etc. and enhancing original demonstrating effect of the body combined with LED.
Plate for advertising	Improvement of advertising effects by improved visibility such as reduction of reflected light.
Application of optical property controlling function (Window glass, lighting, etc.)	Adjustment of reflected light and transmitted light for building materials such as window glass, etc. utilizing function freely controlling optical property of MIX-HF ink. Adjustment of light volume by printing on lighting cover.

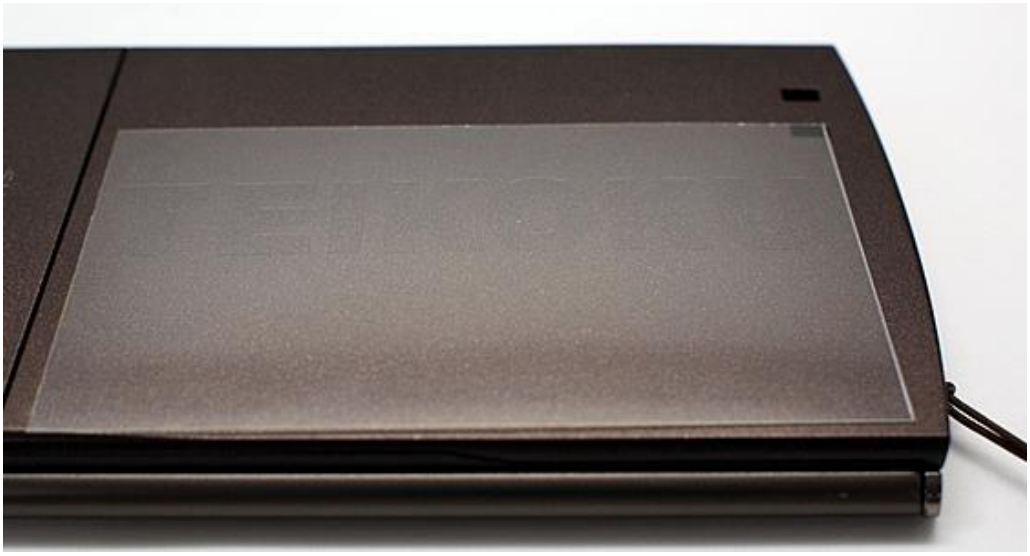
2. Example of excellent transparency and low-reflection function

2.1 Example of high transparency and excellent leveling

The following picture is an example of printing characters with MIX-HF000 Medium on resin sheet. It is not possible to recognize printed characters at all due to high transparency and excellent leveling.



By reflecting light, it is barely possible to recognize characters of “TEIKOKU”.



2.2 Example of providing low-reflection function

The following example is low-reflection Clear providing low-reflection function to MIX-HF000 Medium.

Note: Haze value and gloss value are adjustable freely. Clear introduced in the following photos provide haze value 13% and gloss value 70.

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